Chem 226/ Dr. Rusay
Fall 2004

Olfaction [Part III: Odor and Functionality]

Since compounds with the same molecular formula can smell very differently, there needs to be further refinement of our view of organic compounds in order to explain their olfactory differences. Next we will consider the odorant molecule's functionality. The theory of smell that you provided in **Part II** should be consistent with these features. In **Part IV** formula, structure and function will be related to *chemical communication.*

Individually complete the back of the page providing names or structural formulas of the sample molecules from the names or structures provided. This will require you to use a reference: either ***The Merck Index,*** which is available from the stockroom, and/or the on-line tools: ***Chemfinder*** and/or **ChemID*plus***. (Their Web addresses can be found on Chem 226's *Web Resources & Announcements* page. You may have to use more than one of the three resources to find what you are searching for.)

Suggestions:

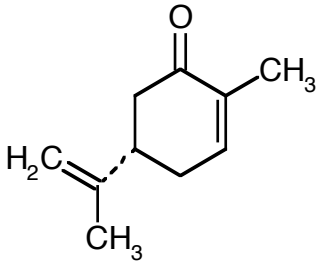
For each named compound first find a correct structure. Use the name index or search tool in the three reference resources. (Be aware that organic molecules can have several different names. You may have to use one that is different from the one provided to find what you are looking for.) Then identify the functionality or functionalities present in each compound from its structure.

For compounds with structures, identify the function(s) first then determine the molecular formula for each. You will have to relate the functionality directly to the compound's chemical name from the list of possibilities with the same molecular formula and compare those structures to those given in the table in order to determine the correct structure. (*The name of the function relates directly to the name of the compound.*)

Refine your theory of smell and answer the accompanying questions.

Olfaction: Odor & Functionality
Part III

Names: _____ Sec._____

	Chemical Name	Structure	Chemical Function(s)	Smell
O-1	oil of wintergreen			Minty
O-2	triethyl amine			Putrid
O-3	isoamyl acetate			Fruity
O-4		$(CH_3)_3COH$	3º alcohol	Camphor
O-5	butanoic acid ethyl ester			Fruity
O-6	carvone			Minty
O-7		$(CH_3)_3COCH_3$		Camphor
O-8		$H_2NCH_2CH_2CH_2CH_2NH_2$		Putrid
O-9		$CH_3CH_2CH_2CO_2H$		Rancid/ Complex
O-10	diallyl disulfide	$CH_2{=}CH_2$ CH SSCHCH_2 $=CH_2$	di-thioether	Garlic/ Complex
O-11		See structure below 	ketone	Caraway/ Complex